ARCHIVES OF ORAL BIOLOGY

VOLUME 40, 1995

VOLUME CONTENTS
AND AUTHOR INDEX

PERGAMON

ARCHIVES OF ORAL BIOLOGY

EDITORS-IN-CHIEF

Dr D. B. FERGUSON, University of Manchester, School of Biological Sciences, 3.239 Stopford Building, Oxford Road, Manchester M13 9PT, U.K.

Dr E. J. KOLLAR, Department of Oral Biology, University of Connecticut Health Center, Farmington, CT 06032, U.S.A.

ACCEPTING EDITORS

Dr S. HAMADA, Department of Oral Microbiology, Faculty of Dentistry, University of Osaka, 1-8 Yamadaoka, Suita, Osaka 565, Japan

Dr R. M. HOPPS, Department of Oral Biology, Institute of Dental Surgery, 256 Gray's Inn Road, London WC1X 8LD, U.K.

Dr R. ORCHARDSON, Institute of Biomedical and Life Sciences, West Medical Building, University of Glasgow, Glasgow G12 8QQ, U.K.

Dr P. SLOAN, Unit of Experimental Oral Pathology, Turner Dental School, University Dental Hospital of Manchester, Higher Cambridge Street, Manchester M15 6FH, U.K.

Dr J. SODEK, Faculty of Dentistry, University of Toronto, Ontario, Canada M5S 1A8

ADVISORY BOARD

W. H. BOWEN (Rochester, U.S.A.)
W. T. BUTLER (Houston, U.S.A.)
G. CIMASONI (Geneva, Switzerland)
M. W. J. FERGUSON (Manchester, U.K.)
S. HAMADA (Osaka, Japan)
M. J. LEVINE (Buffalo, U.S.A.)
J. R. MARTINEZ (San Antonio, U.S.A.)
C. E. NORD (Stockholm, Sweden)
C. ROBINSON (Leeds, U.K.)
J. V. RUCH (Strasbourg, France)
H. E. SCHROEDER (Zurich, Switzerland)
B. J. SESSLE (Toronto, Canada)
T. ZELLES (Budapest, Hungary)

Editorial Assistant: Dr M. EDWARDS

AIMS AND SCOPE

The *Archives of Oral Biology* publishes papers concerned with advances in knowledge of every aspect of the oral and dental tissues and bone over the whole range of vertebrates, whether from the standpoint of anatomy, bacteriology, biophysics, chemistry, DNA biotechnology, epidemiology, genetics, immunology, molecular biology, palaeontology, pathology, physiology or otherwise.

Publishing Office: Elsevier Science Ltd, Bampfylde Street, Exeter EX1 2AH, U.K. [*Tel.* Exeter (01392) 51558; *Fax* 425370]. *Production Editors:* DEBORAH BARRETT & LINSEY BURBERY.

Subscription and Advertising Offices: North America: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. Rest of the World: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. [*Tel.* Oxford (01865) 843000; *Fax* (01865) 843010].

Frequency: Published monthly.

Annual Institutional Subscription Rates 1996: North, Central and South America, U.S.$1384.00; Rest of World, £870.00. Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice.

Back Issues: Back issues of all previously published volumes are available direct from Elsevier Science Offices (Oxford and New York). Complete volumes and single issues can be purchased for 1990–1994. Earlier issues are available in high quality photo-duplicated copies as complete volumes only.

Copyright © 1995 Elsevier Science Ltd

Second class postage paid at NEWARK NJ. Postmaster send address corrections to *Archives of Oral Biology*, Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

LIST OF CONTENTS

NUMBER 1

	Instructions to Contributors	iii
	Editorial	vii
Review Article		
S. J. Brookes, C. Robinson, J. Kirkham and W. A. Bonass	Biochemistry and molecular biology of amelogenin proteins of developing dental enamel	1
F. Kou and U. Takahama	Hydrogen peroxide-induced luminescence and evolution of molecular oxygen in human saliva	15
D. Tziafas, N. Panagiotakopoulos and A. Komnenou	Immunolocalization of fibronectin during the early response of dog dental pulp to demineralized dentine or calcium hydroxide-containing cement	23
María Angélica Montenegro, Hernán Palomino and Hernán M. Palomino	The influence of earthquake-induced stress on human facial clefting and its simulation in mice	33
Goro Kawasaki, Shiro Mataki and Akio Mizuno	Ultrastructural and biochemical studies of the effect of polychlorinated biphenyl on mouse parotid gland cells	39
Kazuhiko Okamura, Ieyoshi Kobayashi, Kou Matsuo, Kunihisa Taniguchi, Yukiko Ishibashi, Toshio Izumi, Katsuya Kitamura and Hidetaka Sakai	An immunohistochemical and ultrastructural study of vasomotor nerves in the microvasculature of human dental pulp	47
S. M. Higham and W. M. Edgar	Effects of lactate dehydrogenase and nicotinamide adenine dinucleotide on human dental plaque pH and acid anion concentrations	55
R. J. C. Wilding, J. C. G. Slabbert, H. Kathree, C. P. Owen, K. Crombie and P. Delport	The use of fractal analysis to reveal remodelling in human alveolar bone following the placement of dental implants	61
R. V. Gallara and S. L. Bellavia	Modification of the β-adrenergic sensitivity of rat submandibular gland by constant light	73
Short Communication		
J. Kato, S. Wakisaka, M. J. Tabata, T. Itotagawa and K. Kurisu	Appearance of dynorphin in the spinal trigeminal nucleus complex following experimental tooth movement in the rat	79
	Announcement	I

NUMBER 2

Nagako Yoshiba, Kunihiko Yoshiba, Hiroaki Nakamura, Masaaki Iwaku and Hidehiro Ozawa	Immunoelectron-microscopic study of the localization of fibronectin in the odontoblast layer of human teeth	83
S. Ohtani, H. Sugimoto, H. Sugeno, S. Yamamoto and K. Yamamoto	Racemization of aspartic acid in human cementum with age	91
Naoki Hamamoto, Yoshioki Hamamoto, Tamio Nakajima and Hidehiro Ozawa	Histological, histocytochemical and ultrastructural study on the effects of surface charge on bone formation in the rabbit mandible	97
K. A. A. S. Warnakulasuriya and D. G. MacDonald	The influence of rate of cell entry to S phase on the labelling index of human buccal epithelium	107
Guo H. Zhang, Jorge Arreola and James E. Melvin	Inhibition by thiocyanate of muscarinic-induced cytosolic acidification and Ca^{2+} entry in rat sublingual acini	111
Renato Bareggi, Maria A. Sandrucci, Giovanna Baldini, Vittorio Grill, Marina Zweyer and Paola Narducci	Mandibular growth rates in human fetal development	119

Per Alstergren, Anna Appelgren, Björn Appelgren, Sigvard Kopp, Thomas Lundeberg and Elvar Theodorsson	Co-variation of neuropeptide Y, calcitonin gene-related peptide, substance P and neurokinin A in joint fluid from patients with temporomandibular joint arthritis	127
Jan E. Kronmiller	Spatial distribution of epidermal growth-factor transcripts and effects of exogenous epidermal growth factor on the pattern of the mouse dental lamina	137
Gerald J. Pinero, Mary C. Farach-Carson, Robert E. Devoll, Jane E. Aubin, Jan C. Brunn and William T. Butler	Bone matrix proteins in osteogenesis and remodelling in the neonatal rat mandible as studied by immunolocalization of osteopontin, bone sialoprotein, α_2HS-glycoprotein and alkaline phosphatase	145
Short Communications		
S. Athanasas-Platsis, N. W. Savage, T. A. Winning and L. J. Walsh	Induction of the CD1a Langerhans cell marker on human monocytes	157
Yutaka Matsuki, Norio Amizuka, Hershey Warshawsky, David Goltzman and Yoshihiko Yamada	Gene expression of epimorphin in rat incisor ameloblasts	161
A. Imai, T. Nashida and H. Shimomura	Characterization of cyclic AMP phosphodiesterase isozymes in rat parotid gland	165
	Announcement	I

NUMBER 3

T. Attin, O. Hartmann, R.-D. Hilgers and E. Hellwig	Fluoride retention of incipient enamel lesions after treatment with a calcium fluoride varnish *in vivo*	169
T. M. Varrela, K. Paunio, F. R. Wouters, J. Tiekso and P-Ö. Söder	The relation between tooth eruption and alveolar crest height in a human skeletal sample	175
H. Devlin, J. Hoyland, A. J. Freemont and P. Sloan	Localization of pro-collagen type II mRNA and collagen type II in the healing tooth socket of the rat	181
Mats Ryberg and Ingegerd Johansson	The effects of long-term treatment with salmeterol and salbutamol on the flow rate and composition of whole saliva in the rat	187
D. R. Eisenmann, S. Sarraj, R. Becker and A. E. Zaki	Ameloblast cycling patterns as measured by fluorochrome infiltration of rat incisor enamel	193
Anna B. de Filippo, Richard P. Ellen and Christopher A. G. McCulloch	Induction of cytoskeletal rearrangements and loss of volume regulation in epithelial cells by *Treponema denticola*	199
Takahisa Sasaki and Hidemi Kawamata-Kido	Providing an environment for reparative dentine induction in amputated rat molar pulp by high molecular-weight hyaluronic acid	209
Kiyoshi Koyano, Youn Joong Kim and Glenn T. Clark	Electromyographic signal changes during exercise in human chronic jaw-muscle pain	221
Karen M. Hiiemae, Shawne M. Hayenga and Andrew Reese	Patterns of tongue and jaw movement in a cinefluorographic study of feeding in the macaque	229
Göran Sundqvist, Jan B. Rosenquist and Ulf H. Lerner	Effects of bradykinin and thrombin on prostaglandin formation, cell proliferation and collagen biosynthesis in human dental-pulp fibroblasts	247
Roberto S. Carvalho, J. Elliot Scott and Edwin H. K. Yen	The effects of mechanical stimulation on the distribution of β_1 integrin and expression of β_1-integrin mRNA in TE-85 human osteosarcoma cells	257

NUMBER 4

J. Appleton	Changes in the plasma electrolytes and metabolites of the rat following acute exposure to sodium fluoride and strontium chloride	265

M. Chiba, K. Komatsu and S. Yamaguchi	Axial movements of rat mandibular incisors measured under artificial respiration with halothane anaesthesia	269
R. F. Minkels, P. J. W. Jüch and J. D. van Willigen	Interneurones of the supratrigeminal area mediating reflex inhibition of trigeminal and facial motorneurones in the rat	275
Toshihiro Nishiura, Kazunari Ishibashi and Kimio Abe	Translocation of orally administered rat salivary cystatin into serum and kidney	285
Kuniaki Miyajima, Ritsuki Ito, Takashi Matsuyama, Akifumi Togari, Shosei Matsumoto and Tetsuo Iizuka	Morphological differences in the skull of ascorbic acid-deficient ODS rats	293
S. Teng and S. W. Herring	A stereological study of trabecular architecture in the mandibular condyle of the pig	299
Ruth B. Paulson, Keith E. Alley, Lawrence J. Salata and Christopher C. Whitmyer	A scanning electron-microscopic study of tongue development in the frog *Rana pipiens*	311
W. Dong and H. Warshawsky	Failure to demonstrate a protein coat on enamel crystallites by morphological means	321
Bhavna Shroff, Kathleen Norris and Roberta Pileggi	Protease activity in the mouse dental follicle during tooth eruption	331
Leslie G. Ratkay, J. Douglas Waterfield and Joseph Tonzetich	Stimulation of enzyme and cytokine production by methyl mercaptan in human gingival fibroblast and monocyte cell cultures	337
A. P. Dasanayake, P. W. Caufield, G. R. Cutter, J. M. Roseman and B. Köhler	Differences in the detection and enumeration of mutans streptococci due to differences in methods	345
G. Hillmann, B. Hillmann and W. Geurtsen	Immunohistological determination of interleukin-1β in inflamed human gingival epithelium	353
Short Communication		
Makio Mogi, Toshitaka Kage, Takehiro Chino and Minoru Harada	Salivary β_2-microglobulin in NZB/WF1 mice	361

NUMBER 5

Maki Itoh	The role of brain acetylcholine in phenol-induced tremor in mice	365
K. G. Smith and P. P. Robinson	The reinnervation of the tongue and salivary glands after two methods of lingual nerve repair in the cat	373
R. K. Rose and G. H. Dibdin	Calcium and water diffusion in single-species model bacterial plaques	385
M. Bonnaure-Mallet, S. Tricot-doleux and G. J. Godeau	Changes in extracellular matrix macromolecules in human gingiva after treatment with drugs inducing gingival overgrowth	393
J. F. Prinz and P. W. Lucas	Swallow thresholds in human mastication	401
James J. Sciote, Anthea M. Rowlerson and David S. Carlson	Myosin expression in the jaw-closing muscles of the domestic cat and American opossum	405
L. Mioche and M. A. Peyron	Bite force displayed during assessment of hardness in various texture contexts	415
Jack C. Brooks, Melinda Brooks, Joseph Piskorowski and James D. Watson	Amylase secretion by cultured porcine parotid cells	425
C. Kasinathan, S. William, S. Vaidyanathan and J. Leventhal	Effect of lipids on glycoprotein sulphotransferase activity in rat submandibular salivary glands	433
Grace Suckling, G. E. Coote, T. W. Cutress and J. Gao	Proton microprobe assessment of the distribution of fluoride in the enamel and dentine of developing central incisors of sheep and changes induced by daily fluoride supplements	439

Short Communications

K. N. Christie, C. Thomson, G. R. Ogden and D. Hopwood — A histochemical study of carbonic anhydrase in the plasma membranes of human oral epithelial cells 447

D. Gašperšič — Micromorphometric analysis of cervical enamel structure of human upper third molars 453

J. C. Elverdin, A. P. Chiarenza, A. B. Frid and M. J. Giglio — Effects of chronic hypoxia on the secretory responses of rat salivary glands 459

NUMBER 6

Instructions to Contributors iii

M. Maeda, Y. Suzuki, Y. Yoshiko, M. Hosoi, S. Suemune, N. Okada and K. Miyata — Effects of 17β-oestradiol and 5α-dihydrotestosterone on the expression of the muscle and heart types of lactate dehydrogenase isozymes in the masseter muscle of developing mice 463

R. A. Burn-Murdoch — The effect of shortening incisor teeth on the eruption rates and lengths of the other incisors in the rat 467

Ayman M. Ali and Mohamed Sharawy — An immunohistochemical study of the effects of surgical induction of anterior disc displacement in the rabbit craniomandibular joint on type I and type II collagens 473

Mie Ohtsuka and Hisashi Shinoda — Ontogeny of circadian dentinogenesis in the rat incisor 481

Etienne Piette and Alois Lametschwandtner — The angioarchitecture of the rat mandibular joint synovium 487

Etienne Piette and Alois Lametschwandtner — The angioarchitecture of the rat mandibular joint bilaminar zone 499

J. D. Rudney, Z. Ji and C. J. Larson — The prediction of saliva swallowing frequency in humans from estimates of salivary flow rate and the volume of saliva swallowed 507

F. Tuisku and C. Hildebrand — Immunohistochemical and electron microscopic demonstration of nerve fibres in relation to gingiva, tooth germs and functional teeth in the lower jaw of the cichlid *Tilapia mariae* 513

Guido M. Macaluso and Antoon De Laat — The influence of stimulating techniques on the masseteric and temporal M-responses in man 521

L. M. Gaubenstock — Dental caries and the secretory activity of human labial minor salivary glands 525

Y. D. Hsieh, H. Devlin and F. McCord — The effect of ovariectomy on the healing tooth socket of the rat 529

Kenji Mitsudo, Miya Kobayashi, Iwai Tohnai, Minoru Ueda, Hisanari Kotani and Takeshi Hoshino — Electron-microscopic and immunohistochemical studies of Langerhans cells and THY-1-positive cells in mouse tongue epithelium subjected to local hyperthermia 533

C. C. Chen, G. K. Essick, D. G. Kelly, M. G. Young, J. M. Nestor and B. Masse — Gender-, side- and site-dependent variations in human perioral spatial resolution 539

C. Marchetti, C. Piacentini, A. Farina, G. Bernasconi and A. Calligaro — A microscopic and immunocytochemical study of structural changes in dysfunctional human temporomandibular joint discs 549

Jean-Marc Tieche and John Leonora — Acute secretion of immunoreactive parotid hormone in response to different diets in the pig 559

Short Communications

R. T. Fernley, J. Farthing and E. J. Cooper — Radioimmunoassay for salivary carbonic anhydrase in human parotid saliva 567

E. J. Raubenheimer, W. F. P. van Heerden, P. J. van Niekerk, V. de Vos and M. J. Turner — Morphology of the deciduous tusk (tush) of the African elephant (*Loxodonta africana*) 571

Y. Y. Xu and L. P. Samaranayake	Oral *Candida albicans* biotypes in Chinese patients with and without oral candidosis	577
H. Nikawa, L. P. Samaranayake and T. Hamada	Modulation of the anti-*Candida* activity of apo-lactoferrin by dietary sucrose and tunicamycin *in vitro*	581

NUMBER 7

C. Dong, A. D. Puckett Jr and C. Dawes	The effects of chewing frequency and duration of gum chewing on salivary flow rate and sucrose concentration	585
Jan E. Kronmiller, Tung Nguyen and William Berndt	Instruction by retinoic acid of incisor morphology in the mouse embryonic mandible	589
S. Wroe and M. Archer	Extraordinary diphyodonty-related change in dental function for a tooth of the extinct marsupial *Ekaltadeta ima* (Propleopinae, Hypsiprymnodontidae)	597
T. Nagasawa, H. Nitta, H. Watanabe and I. Ishikawa	Reduced CD8+ peripheral blood T lymphocytes in rapidly progressive periodontitis	605
Toshio Izumi, Ieyoshi Kobayashi, Kazuhiko Okamura and Hidetaka Sakai	Immunohistochemical study on the immunocompetent cells of the pulp in human non-carious and carious teeth	609
J. S. Henderson and R. B. Johnson	The effects of smokeless tobacco extract on bone nodule formation and mineralization by chick osteoblasts *in vitro*	615
Christopher J. Trentini, William H. Brown, Robert L. Paterson and William R. Proffit	The application of Moire magnification to high-resolution studies of human premolar eruption	623
J. T. Wright, L. Hansen, J. Mahler, C. Szczesniak and J. W. Spalding	Odontogenic tumours in the v-Ha-*ras* (TG·AC) transgenic mouse	631
Ashu Sharma, Brian C. O'Connell, Lawrence A. Tabak and Gurrinder S. Bedi	Expression of a functional rat salivary cystatin S polypeptide in *Escherichia coli*	639
Jan E. Kronmiller, Cynthia S. Beeman, Tung Nguyen and William Berndt	Blockade of the initiation of murine odontogenesis *in vitro* by citral, an inhibitor of endogenous retinoic acid synthesis	645
S. Amar, P. Petrungaro, A. Amar and T. E. Van Dyke	Immunolocalization of bone matrix macromolecules in human tissues regenerated from periodontal defects treated with expanded polytetrafluoroethylene membranes	653
S. Murai, H. Saito, Y. Masuda, O. Itsukaichi and T. Itoh	Basal levels of noradrenaline, dopamine, 5-hydroxytryptamine, and acetylcholine in the submandibular, parotid, and sublingual glands of mice and rats	663
Hiroshi Inoue, Kunihisa Taniguchi, Kazuhiko Okamura, Toshio Izumi, Naoharu Tamura, Shin-ichi Kajiwara, Kazuhiko Yamada, Etsuko Kuroda, Keiji Watanabe and Katsuya Kitamura	Ultrastructural relation between nerve terminals and dentine bridge formation after pulpotomy in human teeth	669
Short Communications		
S. Shibata, S. Suzuki, T. Tengan and Y. Yamashita	A histochemical study of apoptosis in the reduced ameloblasts of erupting mouse molars	677
Bruce Rutherford, Larz Spångberg, Margf Tucker and Marc Charette	Transdentinal stimulation of reparative dentine formation by osteogenic protein-1 in monkeys	681

NUMBER 8

S. Narikawa, Y. Suzuki, M. Takahashi, A. Furukawa, T. Sakane and Y. Mizushima	*Streptococcus oralis* previously identified as uncommon '*Streptococcus sanguis*' in Behçet's disease	685

J. Scott, D. L. Gunn and D. Fletcher	Rate of oxygen consumption by parotid atrophic acinar cells from rats fed liquid diet	691
A. Vanden Abbeele, P. Courtois and M. Pourtois	The influence of different fluoride salts on fluoride-mediated inhibition of peroxidase activity in human saliva	695
C. Dawes and C. Dong	The flow rate and electrolyte composition of whole saliva elicited by the use of sucrose-containing and sugar-free chewing-gums	699
Leo Tjäderhane, Eeva-Liisa Hietala, Martti Svanberg and Markku Larmas	Morphological analysis of dentine formation in young rat molars during the recovery phase with calcium alone or combined with xylitol following a low-calcium dietary regimen	707
Hiroshi Sugiya, Shunsuke Furuyama and Noriko Yokoyama	The dephosphorylation of 22-kDa phosphoprotein by type 2B protein phosphatase in rat parotid acinar cells	713
Nasser A. H. Said-Al-Naief and Shahid H. Ashrafi	Time-related changes induced by zinc-deficient diet in the concentration of rat cheek epithelial membrane-coating granules	717
V. Sivarajasingam and J. R. Drummond	Measurements of human minor salivary gland secretions from different oral sites	723
M. I. Gazi, S. W. Cox, D. T. Clark and B. M. Eley	Comparison of host tissue and bacterial dipeptidyl peptidases in human gingival crevicular fluid by analytical isoelectric focusing	731
C. O. Enwonwu, P. Sawiris and N. Chanaud	Effect of marginal ascorbic acid deficiency on saliva level of cortisol in the guinea pig	737
C. S. Ryan and I. Kleinberg	A comparative study of glucose and galactose uptake in pure cultures of human oral bacteria, salivary sediment and dental plaque	743
C. S. Ryan and I. Kleinberg	Bacteria in human mouths involved in the production and utilization of hydrogen peroxide	753
S. Hidaka, Y. Okamoto, K. B. Abe, K. Miyazaki, M. Suekawa and S. Y. Liu	The occurrence of silicon-containing particles in calcified lesions of DBA/2NCrj mice	765
C. Dong and C. Dawes	The effects of blindfolding and blindness on the unstimulated and chewing-gum-stimulated flow rates of whole saliva	771
Short Communications		
J. Okazaki, A. Kamada, F. Matsukawa, T. Sakaki and Y. Gonda	Disaccharide analysis of chondroitin sulphate in human gingival crevicular fluid using high-performance liquid chromatography	777
S. Watanabe, M. Ohnishi, K. Imai, E. Kawano and S. Igarashi	Estimation of the total saliva volume produced per day in five-year-old children	781

NUMBER 9

S. Maruyama, H. Nakagaki, M. Hanaki, I. Morita, T. Ito, Y. Toyama, T. Kanayama, N. Ohno and K. Kurosu	Glucose retention on the surfaces of primary teeth in 3- and 4-yr-old children	783
W. G. Young, J. V. Ruch, M. R. Stevens, C. Bègue-Kirn, C. Z. Zhang, H. Lesot and M. J. Waters	Comparison of the effects of growth hormone, insulin-like growth factor-I and fetal calf serum on mouse molar odontogenesis *in vitro*	789
I. Sasagawa	Fine structure of tooth germs during the formation of enameloid matrix in *Tilapia nilotica*, a teleost fish	801
N. P. Kerezoudis, K. Fried and L. Olgart	Haemodynamic and immunohistochemical studies of rat incisor pulp after denervation and subsequent re-innervation	815
Kuniaki Suzuki, Tohru Okamoto, Yoshitaka Yoshimura, Yoshiaki Deyama, Yoh Hisada and Akira Matsumoto	Phosphotyrosyl protein phosphatase-like activity of a clonal osteoblastic cell line (MC3T3-E1 cell)	825
Jan E. Kronmiller, Tung Nguyen, William Berndt and Arthur Wickson	Spatial and temporal distribution of *sonic hedgehog* mRNA in the embryonic mouse mandible by reverse transcription/polymerase chain reaction and *in situ* hybridization analysis	831

J. M. Brown, K. Watanabe, R. L. Cohen and D. A. Chambers — Molecular characterization of plasminogen activators in human gingival crevicular fluid — 839

J. H. Bennett, P. Hunt and P. Thorogood — Bone morphogenetic protein-2 and -4 expression during murine orofacial development — 847

Miriam M. Brysk, Istvan Arany, Henry Brysk, San-Hwan Chen, Karen H. Calhoun and Stephen K. Tyring — Gene expression of markers associated with proliferation and differentiation in human keratinocytes cultured from epidermis and from buccal mucosa — 855

Louis A. Norton, Kim L. Andersen, Dorthe Arenholt-Bindslev, Lis Andersen and Birte Melsen — A study of shape changes in human oral cells perturbed by a simulated orthodontic strain *in vitro* — 863

T. Tabata, T. Suzuki and M. Watanabe — Response characteristics of periodontal mechanoreceptors to mechanical stimulation of canine and incisor teeth in the cat — 873

Short Communication

C. D. Gibbs, S. E. Atherton, E. Huntington, R. J. M. Lynch and R. M. Duckworth — Effect of low levels of fluoride on calcium uptake by demineralized human enamel — 879

NUMBER 10

D. Tziafas, A. Alvanou, N. Panagiotakopoulos, A. J. Smith, H. Lesot, A. Komnenou and J. V. Ruch — Induction of odontoblast-like cell differentiation in dog dental pulps after *in vivo* implantation of dentine matrix components — 883

H. Ikeda, M. Sunakawa and H. Suda — Three groups of afferent pulpal feline nerve fibres show different electrophysiological response properties — 895

Boris Polak, Michael A. Peck, John K. Dyer, Philip S. Bird, Richard A. Reinhardt and Gregory J. Seymour — Purification and characterization of *Porphyromonas gingivalis* outer membrane antigens — 905

Jill A. Helms, Mary Anne Della-Fera, April E. Mott and Marion E. Frank — Effects of chlorhexidine on human taste perception — 913

Tomoyuki Kawase, Michiaki Orikasa, Sadayoshi Ogata and Douglas M. Burns — Protein tyrosine phosphorylation induced by epidermal growth factor and insulin-like growth factor-I in a rat clonal dental pulp-cell line — 921

T. Kondo, M. A. Kido, T. Kiyoshima, T. Yamaza and T. Tanaka — An immunohistochemical and Monastral blue-vascular labelling study on the involvement of capsaicin-sensitive sensory innervation of the junctional epithelium in neurogenic plasma extravasation in the rat gingiva — 931

K. Takahashi, I. Poole and D. F. Kinane — Detection of interleukin-1β mRNA-expressing cells in human gingival crevicular fluid by *in situ* hybridization — 941

S. S. Schwartz, W. X. Zhu and L. M. Sreebny — Sodium dodecyl sulphate–polyacrylamide gel electrophoresis of human whole saliva — 949

E. R. Dumont — The effects of sectioning angle on measurements of enamel prism size and spacing — 959

J. Kido, C. Kasahara, K. Ohishi, S. Nishikawa, H. Ishida, K. Yamashita, S. Kitamura, K. Kohri and T. Nagata — Identification of osteopontin in human dental calculus matrix — 967

Short Communications

J. E. Bergmann and H.-J. Gülzow — Detection of binding of denatured salivary α-amylase to *Streptococcus sanguis* — 973

Takashi Teramoto, Miya Kobayashi, Isao Mizuno, Kazuki Yasue, Hideki Mizutani, Minoru Ueda and Takeshi Hoshino — Type VI collagen periodic fibrils in the synovium of the mouse temporomandibular joint — 975

S. C. Kasasa and M. Soory — The response of human gingival fibroblasts to interleukin-1 in their metabolic conversion of two androgenic substrates — 979

Announcement — I

NUMBER 11

KEITH D. HUNTER and WILLIAM S. WILSON	The effects of antidepressant drugs on salivary flow and content of sodium and potassium ions in human parotid saliva	983
L-Å. LINDÉN, Ö. KÄLLSKOG and M. WOLGAST	Human dentine as a hydrogel	991
A. HUYSSEUNE	Phenotypic plasticity in the lower pharyngeal jaw dentition of *Astatoreochromis alluaudi* (Teleostei: Cichlidae)	1005
R. E. COHEN, B. NOBLE, M. E. NEIDERS and R. L. COMEAU	Mononuclear cells in salivary glands of normal and isoproterenol-treated rats	1015
JEAN-CHRISTOPHE FARGES, ANNICK JOFFRE, HERVE LESOT, FRANCOISE BLEICHER and HENRY MAGLOIRE	Immunocytochemical localization of fibronectin and a 165-kDa membrane protein in the odontoblast layer under initial carious lesions in man	1023
T. SAWADA and A. NANCI	Spatial distribution of enamel proteins and fibronectin at early stages of rat incisor tooth formation	1029
OUTI TIITTA, MARITA LUOMANEN, JARKKO HIETANEN and ISMO VIRTANEN	Tenascin expression in mucocutaneous diseases and related lesions of human oral mucosa	1039
JOSEPH P. BIDWELL, EDWARD G. FEY and SANDY C. MARKS JR	Nuclear matrix–intermediate filament proteins of the dental follicle/enamel epithelium and their changes during tooth eruption in dogs	1047
I. FRISTAD, K. J. HEYERAAS, R. JONSSON and I. HALS KVINNSLAND	Effect of inferior alveolar nerve axotomy on immune cells and nerve fibres in young rat molars	1053
E. S. REEH, W. H. DOUGLAS and M. J. LEVINE	Lubrication of human and bovine enamel compared in an artifical mouth	1063
Short Communications		
D. M. CHISHOLM and M. M. ADI	A histological, lectin and S-100 histochemical study of the developing prenatal human sublingual salivary gland	1073
NORIYASU TAKAI, KENJI UCHIHASHI, HARUKI MIYAO, HIROTAKA MURAKAMI and YO YOSHIDA	Chorda-evoked opening of tight junctions in rat submandibular salivary acini demonstrated by microperoxidase	1077

NUMBER 12

T. LOMBARDI, E. W. ODELL and P. R. MORGAN	*P*53 immunohistochemistry of odontogenic keratocysts in relation to recurrence, basal-cell budding and basal-cell naevus syndrome	1081
S. LAW, P. W. WERTZ, D. C. SWARTZENDRUBER and C. A. SQUIER	Regional variation in content, composition and organization of porcine epithelial barrier lipids revealed by thin-layer chromatography and transmission electron microscopy	1085
C. Y. WU-WANG, M. PATEL, J. FENG, M. MILLES and S. L. WANG	Decreased levels of salivary prostaglandin E_2 and epidermal growth factor in recurrent aphthous stomatitis	1093
J. W. OSBORN	Biomechanical implications of lateral pterygoid contribution to biting and jaw opening in humans	1099
D. H. PASHLEY, B. CIUCCHI, H. SANO, R. M. CARVALHO and C. M. RUSSELL	Bond strength versus dentine structure: a modelling approach	1109
IAIN C. SUTCLIFFE	Identification of a lipoarabinomannan-like lipoglycan in *Corynebacterium matruchotii*	1119
MAURIZIO S. TONETTI, ANTJE M. STRAUB and NIKLAUS P. LANG	Expression of the cutaneous lymphocyte antigen and the $\alpha^{IEL}\beta_7$ integrin by intraepithelial lymphocytes in healthy and diseased human gingiva	1125
A. J. THEXTON, R. Z. GERMAN and A. W. CROMPTON	Latency of the jaw-opening reflex in the premature, preweaning and adolescent pig (Hanford strain miniature pig, *Sus scrofa*)	1133
E.-L. HIETALA and M. LARMAS	Effects of xylitol and carbohydrate diets on dental caries, dentine formation and mineralization in young rats	1137

ANASTASSIA E. KOSSIONI and HERCULES C. KARKAZIS — Variation in the masseteric silent period in older dentate humans and in denture wearers — 1143

Short Communications

E. D. PEDERSON, S. R. STANKE, S. J. WHITENER, P. T. SEBASTIANI, B. L. LAMBERTS and D. W. TURNER — Salivary levels of α_2-macroglobulin, α_1-antitrypsin, C-reactive protein, cathepsin G and elastase in humans with or without destructive periodontal disease — 1151

Y. NISHIOKA, H. NAKAGAKI, S. KATO, I. MORITA and K. KUROSU — Fluoride profiles in different sites of approximal surfaces of second primary molars after topical application of acidulated phosphate fluoride gel *in vivo* — 1157